UTAH SAFETY BELT OBSERVATIONAL SURVEY

JULY 2007 REPORT

INTRODUCTION

According to the National Highway Traffic Safety Administration (NHTSA), deaths and serious injuries caused by motor vehicle crashes could be reduced by approximately 50% with proper and consistent use of safety belts. To help increase safety belt use, traffic safety advocates have used a combined approach which involves legislation, public information and education efforts and enforcement.

In 1986, the first Safety Belt Use Law was enacted in Utah. The law has gone through several revisions throughout the years and currently states that all drivers and passengers must use safety belts. The law is secondary for people ages 19 and older and primary for people under 19 years of age. In addition, children under the age of five must be restrained in an appropriate child safety seat.

Educational and enforcement programs are also used to increase awareness of the importance of safety belts. Public education efforts include training, presentations, media campaigns, safety fairs, and high visibility enforcement efforts. These activities are conducted by the Utah Highway Safety Office (UHSO), state and local health departments, hospitals, law enforcement agencies, fire/EMS, businesses and other partnering agencies committed to making Utah's roads safer. To determine the effectiveness of these legislative and preventative efforts, a survey has been conducted each year since 1986 to measure safety restraint usage rates. The survey results show that these efforts have been effective in increasing safety belt use. Utah's safety belt usage rate has increased from 18% in 1986 to the current rate of 86.8% (Figure 1).

BACKGROUND

In 1991, the NHTSA established guidelines for conducting safety belt use surveys, which gave the states much discretion in survey design and implementation. In 1998, these guidelines were changed when the Secretary of Transportation was directed to allocate, over a 5-year period, funds to states whose safety belt use rates meet certain requirements. The allocations to states, resulting from this seat belt incentive grant, are based on savings in medical costs to the federal government because of a use rate higher than the national average or from an increase in their reported use rates. To determine this allocation, the states needed to conduct an annual survey which meets the new criteria.

The criteria directed that a state survey must be: probability based; based on observed shoulder belt use; designed to produce estimates with a relative precision of +/- 5 percent; designed to study front seat outboard passengers of all passenger vehicles during all daylight hours for all days of the week; designed to include the largest geographic areas containing at least 85 percent of the state's population; and properly documented.

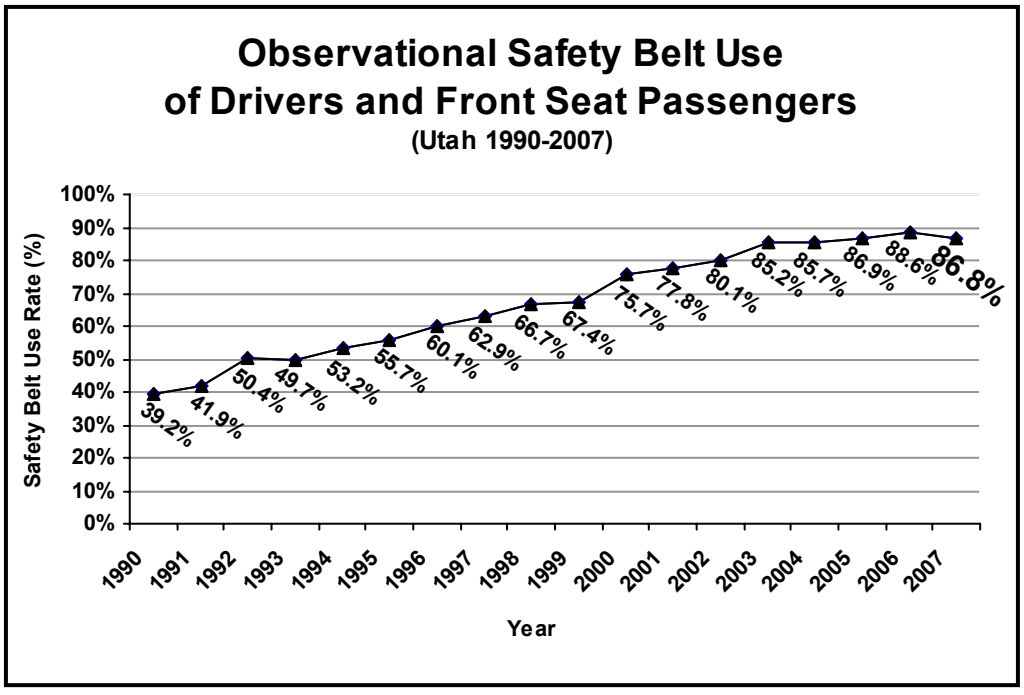

Figure 1

While the safety belt incentive funding ended in 2003, NHTSA continues to require states to follow the survey guidelines, as results are used to help determine the national use rate and can qualify states for future funding opportunities. In addition, beginning in 2003, states were also required to conduct the survey in June, which marks the conclusion of the national high-visibility enforcement campaign, *Click It or Ticket*. By conducting the study during this time period, Utah is able to determine the highest possible safety belt usage rate for the year and evaluate the effectiveness of the *Click It or Ticket* effort.

SURVEY METHODOLOGY

Sample Stratification
Utah encompasses an area of 84,916 square miles, and the census for the year of 2000 was 2,233,169. The state has a varied geographic distribution of its population with large rural and frontier areas. Over 76% of Utah's population lives within four counties clustered against the Wasatch Mountains. This leaves the remaining 25 counties with less than 24% of the population. Based on national criteria to exclude no more than 15% of the state's population, the six most populated counties (Cache, Davis, Salt Lake, Utah, Washington, and Weber) were selected for the survey.

Sample Selection
Road segments were defined by data from the Utah Department of Transportation (UDOT). It was determined that there was an average of 282 road segments in each of the 6 sampled counties. Through random selection, 27 state road segments in each county (162 total) were selected for observation. The 27 road segments within each county were defined as rural or urban roadways and were randomly selected with probabilities of selection corresponding to vehicle miles traveled (VMT).

Day of Week and Time of Day
A day of the week, time of day, and direction of travel were randomly selected for each road segment. In addition, no more than six sites were selected for a 40-minute observation in a single day. All time periods were during daylight hours, starting at 7:30 AM and ending at 4:30 PM. To minimize travel time and distance traveled, sites were grouped into geographic clusters.

Sample Size
To determine sample size, based on previous surveys, it was estimated that approximately 15,000 observations would need to be acquired from the 162 sites for a single survey in order to meet the required accuracy of an approximate marginal error of less than 1%, at a 95% confidence.

Data Collection
Each site included a specific road segment using a mile post, time of day, day of week, and direction of travel. All passenger cars, pickup trucks, vans, and sport utility vehicles were observed for a period of 40 minutes at each site. Commercial trucks and motor homes were excluded. Only drivers and front outboard passengers were observed. All lanes of traffic traveling in the predetermined direction of travel were observed. Observers were trained using a Field Observer's Instruction Manual and were provided with survey observation forms and information on each of the 162 sites to help locate the exact location to be observed.

Statistical Analysis
Completed data collection forms were returned to the UHSO where the data was entered into an electronic format and provided to a statistician for analysis.

Child Restraint Survey Methodology
The NHTSA does not require states to conduct child restraint observational studies and does not provide criteria or approve methodology for conducting these studies. To ensure the results are accurate, the UHSO chose to follow the safety belt survey guidelines established by NHTSA in 1998.

A Child Restraint Use Survey was not conducted in 2007, however, a summary of the 2006 survey guidelines are as follows: children ages 0-10 were observed for restraint use in the six selected counties; children ages 0-4 were observed for child safety seat use and children ages 5-10 were observed for child safety seat OR safety belt use; safety restraint use among children was observed for 40 minutes at 27 sites per county; only local roadways with speed limits of 40 miles per hour or less were selected; the days of the week, time of day, direction of vehicle travel, and specific location chosen for observation were randomly selected; to assure both child restraint and safety belt surveys were not conducted on the same day, the days in which adult safety belt use were being studied were excluded; passenger cars, pickup trucks, vans, and sport utility vehicles were observed; all seating positions in the vehicle were eligible for observation if the surveyor could positively identify restraint use or non-use.

RESULTS—ADULT SURVEY

The results of this study show the overall safety belt use rate for Utah, as well as the use rate for each of the 6 counties surveyed. The use rates for female and male occupants are also provided for comparison as well as the rates as seen on interstates versus local roadways.

A total of 56,440 drivers and front seat passengers were observed. Overall safety belt usage for all vehicle types was determined to be **86.8%**. This estimate has a margin of error of +/-0.28%, well within NHTSA specifications of +/- 5%.

Unfortunately, for the first time since 1993, Utah's safety belt use rate has shown a decline. The 2007 rate is 1.8% lower than the 2006 rate of 88.6%.

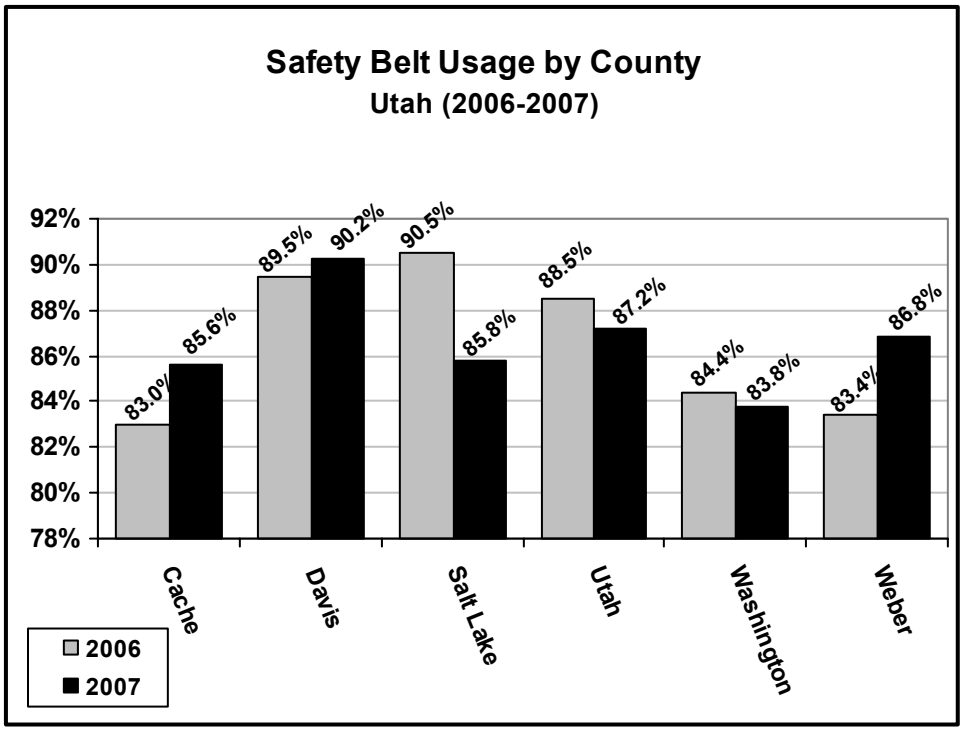

Figure 2

The study also revealed that three of the six counties surveyed increased their usage rates from the previous year. Figure 2 shows the 2006 and 2007 safety belt usage rates for the six counties.

Gender by County

When comparing belt use among male and female drivers and front seat passengers, it was determined that females were more likely to wear safety belts than males. Females buckled up 90.1% of the time, whereas 84.2% of males used seat belts. The results for safety belt usage among male and female occupants in 2006 and 2007 are summarized by county in Table 1.

Road Type by County

When comparing safety belt use among drivers and front seat passengers on highways and local roadways, it was determined that more people used safety belts while traveling on highways when compared to local roadways. On highways, 89.8% of people used seat belts, whereas 84.6% of people buckle up on local roadways.

Table 2 provides the safety belt use rates for both local roadways and highways for each county. The table does not include a usage rate for highways in Cache County since the Utah Department of Transportation's roadway database does not show any major highways in that county. All roads selected for observation in Cache County were considered to be local.

TABLE 1: SAFETY BELT USE AMONG MALE AND FEMALE OCCUPANTS BY COUNTY (2006-2007)

	MALE OCCUPANTS		FEMALE OCCUPANTS	
County	**2006**	**2007**	**2006**	**2007**
Cache	78.6%	**82.2%**	87.7%	**89.9%**
Davis	86.7%	**87.9%**	93.1%	**92.9%**
Salt Lake	88.9%	**84.0%**	92.8%	**88.3%**
Utah	86.2%	**85.0%**	91.2%	**89.8%**
Washington	81.3%	**81.3%**	88.3%	**87.1%**
Weber	82.4%	**83.8%**	84.5%	**91.1%**
Overall	84.3%	**84.2%**	89.7%	**90.1%**

TABLE 2: COUNTY SAFETY BELT USE BY ROAD TYPE (2007)

County	Local Roadway	Highway
Cache	85.6%	N/A
Davis	88.4%	91.3%
Salt Lake	84.1%	90.8%
Utah	84.3%	89.4%
Washington	79.5%	87.3%
Weber	84.7%	90.1%
Overall	**84.6%**	**89.8%**

CHILD RESTRAINT SURVEY

Background

The UHSO has been conducting child restraint observational studies since 1984. The ages of children observed in these studies has varied throughout the years in order to mirror changes in Utah's safety restraint law and national child passenger safety guidelines.

One of the most important steps in improving Utah's child restraint law occurred in 2000, when legislators voted to upgrade the law to make child safety seat use mandatory for children through age 4. Since that time, continued efforts have been taken by traffic safety advocates statewide to create a law that protects all children. Such a law would support the national recommendations that children ride in an appropriate safety seat until they are approximately 80 pounds or age 8.

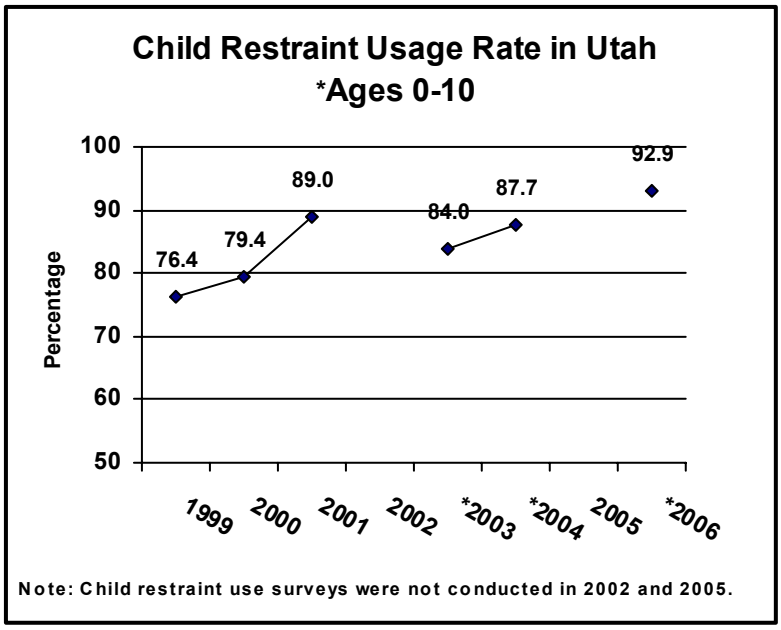

Figure 3

A brief history of the changes in child restraint survey methodology are as follows:

- Between 1984 and 1990, children under the age of five were observed for child safety seat or safety belt use.
- From 1991 through 1997, children ages 0-2 were observed for child safety seat use and children 2-8 were observed for safety seat or seat belt use.
- Surveys conducted in 1999 and 2001 observed children up to age 10. Children ages 0-2 were observed for child safety seat use and children ages 2-10 were observed for safety seat or seat belt use.
- Since 2003, children ages four and younger have been observed for child safety seat use and children ages 5-10 have been observed for child seat or safety belt use.
- Child restraint usage was not studied in 1998, 2002, 2005, and 2007 due to funding constraints.

Due to these many changes in the observed age groups for child safety seat use, it is difficult to compare the 2003, 2004 and 2006 studies with previous ones.

Results

A child restraint usage survey was not conducted in 2007, therefore, the following information is related to the 2006 study.

In 2006, 3,969 children under the age of 10 were observed for safety restraint use. The use rate for this age group was found to be **92.9%**. This demonstrates and increase of 5.2% from the 2004 rate of 87.7% (see Figure 3).

When comparing age groups, safety restraint usage decreases as children grow. The 2006 survey results show that **94.8%** of children under five years were restrained in a child safety seat, whereas only **87.0%** of children ages 5-10 were restrained in a safety seat or seat belt. However, safety restraint use increased among both age groups from the 2004 study (see Figure 4).

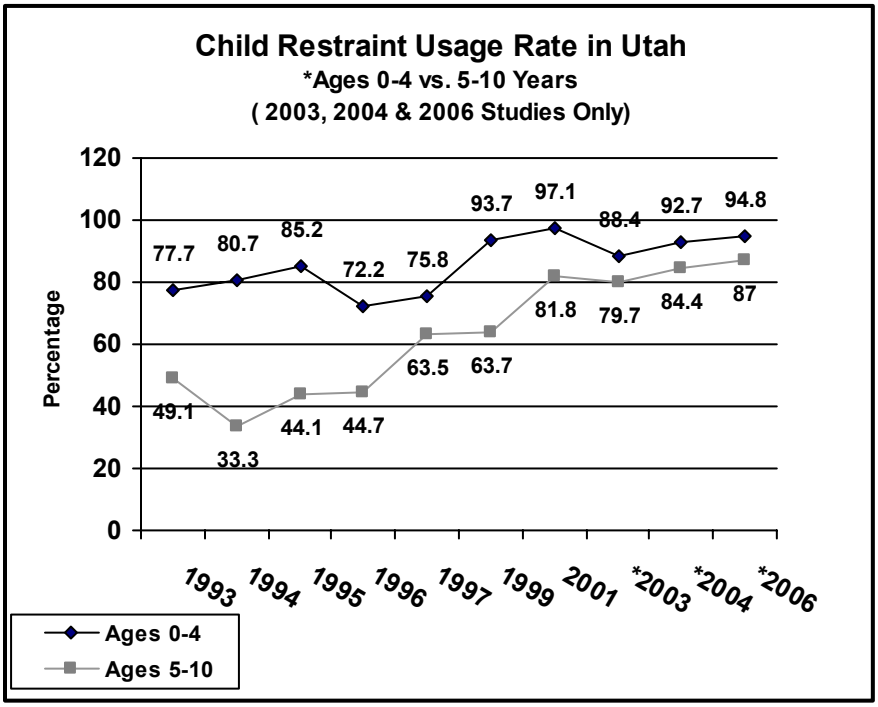

Figure 4

Of the six counties surveyed, five of the six showed increases in child restraint use from 2004. Table 3 displays use rates by age group for each of the six counties surveyed. It also provides the rates for 2004 and 2006 for comparison.

TABLE 3: COUNTY SAFETY RESTRAINT USE AMONG CHILDREN BY AGE (2004 - 2006)

County	Age	2004	2006	% Change
Cache	0-4 Yrs	87.8%	94.5%	+ 6.7%
	5-10 Yrs	85.2%	85.9%	+ 0.7%
	Total	**86.2%**	**89.3%**	**+ 3.1%**
Davis	0-4 Yrs	97.5%	95.0%	- 2.5%
	5-10 Yrs	89.9%	89.1%	- 0.8%
	Total	**93.0%**	**91.7%**	**- 1.3%**
Salt Lake	0-4 Yrs	93.8%	99.4%	+ 5.6%
	5-10 Yrs	83.2%	96.0%	+ 12.8%
	Total	**87.5%**	**97.8%**	**+ 10.3%**
Utah	0-4 Yrs	93.4%	97.6%	+ 4.2%
	5-10 Yrs	84.4%	84.4%	- 0.05%
	Total	**87.9%**	**89.6%**	**+ 1.7%**
Washington	0-4 Yrs	82.0%	82.0%	+ 0.01%
	5-10 Yrs	79.9%	80.8%	+ 0.9%
	Total	**80.6%**	**81.4%**	**+ 0.8%**
Weber	0-4 Yrs	93.5%	94.0%	+ 0.5%
	5-10 Yrs	81.9%	83.5%	+ 1.6%
	Total	**85.8%**	**87.1%**	**+ 1.3%**
Overall	**84.4%**	**87.7%**	**92.9%**	**+ 5.2%**

CONCLUSIONS

Adult Safety Belt Use

- The weighted statewide result for 2007 is 86.8% +/- 0.28%.
- For the first time since 1993, Utah's safety belt use rate has shown a decrease.
- The decline in safety belt usage is largely due to drops in the highly populated Salt Lake County (85.8%), which showed a decrease of 4.7% from 2006.
- Seat belt use improved to 86.8% (+3.4%) in Weber County due to an increase in use by females (91.1%, +7%).
- Seat belt use improved to 85.6% (+2.6%) in Cache County due to an increase in use by males (82.2%, +3.6%).
- Use on highways improved in Weber County (90.1%, +5.7%), but declined in Salt Lake (90.8%, -1.8%) and Utah (89.4%, -2.6%) Counties.
- Use on local roads rises in Cache (85.6%, +2.7%) and Weber (84.7%, +1.8%) Counties, but drops in Salt Lake (84.1%, -4.8%) and Washington (79.5%, -1.8%) Counties.
- Among the six counties observed for the study, Salt Lake County dropped from the highest level of safety belt use in 2006 to 4th in 2007.

Child Restraint Use

- A Child Restraint Use Survey was not conducted in 2007. Due to funding constraints, a child restraint use study will be completed every other year.
- In 2006, the weighted statewide safety belt use rate for children age 0-10 is 92.9%, a statistically significant increase of 5.2% over 2004.
- Child restraint use increased among children age 0-4 from 92.7% in 2004 to 94.8% in 2006 (+2.1%). Usage among children age 5-10 also increased from 84.4% to 87.0% (+2.6%).
- The safety restraint use rate among children age 0-4 is highest in Salt Lake County (99.4%), which demonstrates an increase of 5.6% from the 2004 rate.
- Safety restraint use of children age 0-4 is lowest in Washington County (82.0%), and was unchanged from 2004.
- Davis County was the only area that showed a statistically significant decrease in usage among children age 0-4 (95.0%, -2.5%).
- Among children age 5-10, Salt Lake County had the highest safety restraint use rate and the largest increase (96%, +12.8%).

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